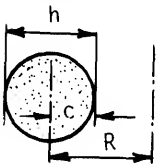
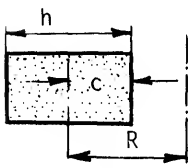
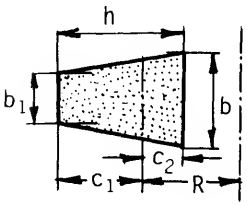
Table 28.1 Analytical Expressions for λ



$$\lambda = \frac{1}{4}\left(\frac{c}{R}\right)^2 + \frac{1}{8}\left(\frac{c}{R}\right)^4 + \frac{5}{64}\left(\frac{c}{R}\right)^6 + \frac{7}{128}\left(\frac{c}{R}\right)^8 + \cdots$$

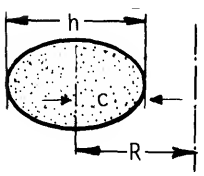


$$\lambda = \frac{1}{3}\left(\frac{c}{R}\right)^2 + \frac{1}{5}\left(\frac{c}{R}\right)^4 + \frac{1}{7}\left(\frac{c}{R}\right)^6 + \cdots$$

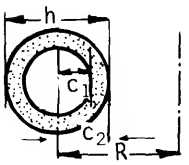


$$\lambda = -1 + \frac{R}{Ah}\left\{[b_1 h + (R + c_1)(b - b_1)]\log_e\left(\frac{R + c_1}{R - c_1}\right) - (b - b_1)h\right\}$$

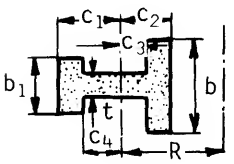
where A = area of cross section



$$\lambda = \frac{1}{4}\left(\frac{c}{R}\right)^2 + \frac{1}{8}\left(\frac{c}{R}\right)^4 + \frac{5}{64}\left(\frac{c}{R}\right)^6 + \frac{7}{128}\left(\frac{c}{R}\right)^8 + \cdots$$

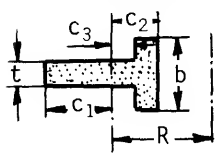


$$\lambda = -1 + \frac{2R}{c_2^2 - c_1^2}\left[\sqrt{R^2 - c_1^2} - \sqrt{R^2 - c_2^2}\right]$$

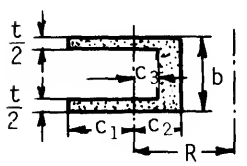


$$\lambda = -1 + \frac{R}{A}[b_1 \log_e(R + c_1) + (t - b_1)\log_e(R + c_4) + (b - t)\log_e(R - c_3) - b\log_e(R - c_2)]$$

where A = area of cross section



In the expression for the unequal I given above make $c_4 = c_1$ and $b_1 = t$, so that $\lambda = -1 + \frac{R}{A}[t\log_e(R + c_1) + (b - t)\log_e(R - c_3) - b\log_e(R - c_2)]$



Area $= A = tc_1 - (b - t)c_3 + bc_2$ (applies to U and T sections)